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On the Implementation and Follow-Up of Decisions

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ABSTRACT: *Postmeeting activities have not had enough research within the decision-making cycle. Perhaps they have been considered trivial or not meaningful in the past. However, without an appropriate follow-up, important decisions made in the previous phase may get lost or be implemented wrongly. This paper proposes computer-based support for postmeeting activities. The support includes the corresponding linkage of activities to the meeting decisions that originated them. The proposed system follows a process pattern approach to design the postmeeting activities and uses a workflow management system for process enactment.*

KEYWORDS: Post-meeting, decision follow-up, workflow, process patterns.

1. Introduction

There has been much emphasis on group decision support systems but little attention has been paid to the implementation stage that follows a decision meeting. The gap between the end of a meeting and its post-meeting activities may, in fact, turn the decision inconsequent, due to the inappropriate support to the implementation stage. Often, decisions that are implemented without the necessary follow-up may generate outcomes, different from those planned at the time of the decision. Cultural barriers and lack of appropriate tools induce just informal links. As a result, important decisions are not properly or timely implemented.

This paper addresses the issue of post-meeting support. It discusses why supporting post decision activities and linking them to the corresponding decision meeting are essential to make the meeting cycle fully successful. We claim that supporting such link with a computer system is more efficient and effective.

We identify four aspects of post-meeting support: the decision implementation plan; the follow-up of implementation activities; the support for interaction between decision makers and implementers; and the awareness support to external members. Each of these five aspects is supported by the system we propose.

The approach we chose for the proposed solution is the use of a library of process patterns common to several decision implementations. The process patterns are adapted to the specifics of each decision and converted into an implementation plan. The plan is then the input to the workflow engine and the process instance is enacted. Monitoring and interaction tools are also part of the environment.

The paper is divided into 5 sections. Section 2 discusses the decision meeting life cycle and the motivation for the proposed solution. Section 3 describes the requirements for the link between the decision meeting and its corresponding implementation. Next we present the architecture and functionality of the proposed solution. In Section 5 we discuss how the solution can be implemented and assessed.

2. Decision Meetings Life Cycle

Decision meetings are not isolated events. They are part of a continuous cycle of premeeting, meeting and post-meeting activities (Oppenheimer, 1987, as cited by Bostrom et al. 1993). Of course, the meeting itself is the most visible part of this cycle, but the other components are always present. Making premeeting and post-meeting activities explicit may be the first step to enhance the whole cycle and thus, to obtain better decisions as a final result. As pointed by Russo (1989), it is not enough to simply make a decision and move on. We must periodically review our decisions; otherwise we are wasting good opportunities for improvement.

Figure 1 illustrates a simplified Decision Meeting Cycle with explicit components. The need for a meeting brings to life its preparation. Thus the

premeeting can include activities such as the creation of an agenda, the identification of people to be invited and their roles, the preparation of each participant for the meeting, the inclusion of background information, etc (Borges et al., 1999). Then, the meeting itself takes place. During this stage, interactions among participants may conclude with one or more decisions to be implemented afterwards. The post-meeting stage concerns activities to be carried out by people not necessarily present in the meeting. These post-meeting activities include dissemination, monitoring implementation of the decisions and clarification of ambiguous decision details.

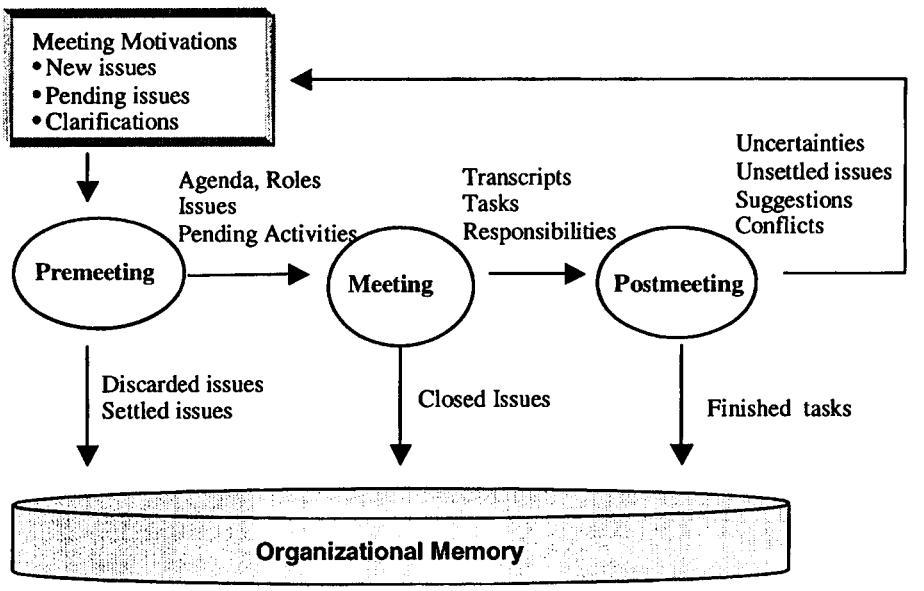

Figure 1. Decision meetings life cycle.

Most of the support for the post-meeting is done with general tools, such as electronic mail. This may be satisfactory in simple situations, but in others there might be several activities requiring support. Such activities include to-do lists - which also need to be monitored - details to be worked out, doubts from the persons who are responsible for the tasks to be answered, and conflicts to be solved. Our proposal is for developing a comprehensive system. Such system should give users a payoff justifying the burden they might have while interacting with it.

The three stages presented in Figure 1 can be carried on in any combination of space/time arrangements. Space options are *face-to face* (like in traditional meetings) or *distributed* (e.g., people in their offices using computers connected to a network). Time options are *synchronous* (all people present at the same time) or *asynchronous* (people participate whenever they have time for it). Probably, most pre-meeting and post-meeting activities are distributed and asynchronous.

People participating in the first two stages will probably be the same (except perhaps for a few advisors or observers who may participate just in one of the pre-

meeting or meeting phases). On the other hand, people working in the post-meeting stage are implementers, most probably different from the decision makers participating in the pre-meeting and meeting stages. Finally, during post-meeting, the facilitator role should guide and monitor the activities being carried out, forward doubts and queries to the people who can appropriately answer them, inform and remind persons about their promises and responsibilities, etc.

3. Post-meeting support requirements

If we assume the actual meeting is part of a cycle of activities aimed to discuss, decide, plan, execute and evaluate organizational policies and procedures, which are the requirements for the post-meeting stage of this cycle? The post-meeting stage and the transition between meeting and post-meeting are presented in this section. We describe four requirements we believe are the most relevant to support the post-meeting phase. For each requirement we discuss the problem motivating it, the proposed solution, the foreseen benefits and the required functionality.

3.1. Implementation Plan

After a decision is reached, the implementation plan is usually left to the team in charge of implementing it. In spite of the details discussed during the decision process, it is uncommon that a specific implementation plan comes out from a decision meeting. Decision evaluation criteria are seldom generated either. As a result, relevant information is dealt outside the meeting and in most cases is not made available to meeting participants. The information exists but there is no mechanism to generate a connection between these two stages.

The implementation plan, the resource allocation and their corresponding enactment should all be considered as part of the decision process. The information generated as a result of a decision should not only be made available but also kept up-to-date in conformity with the actual execution plan. Besides, there should be a link with operations under execution and their corresponding evaluation criteria.

If the execution plan is formally required, potential problems can be promptly detected, increasing the efficiency of the process. The execution plan will permit the decision team to closely follow the implementation operations, identifying and correcting any undesirable changes or shortcuts. Besides, if the evaluation is linked to the execution plan, it facilitates the future assessment.

Post-meeting support should provide means to rapidly draft an execution plan and publish it. In addition, it should allow changes to the plan even while it is being accomplished. The system should provide means to generate tasks to the implementation team, based on the proposed execution plan. Finally, the system should record the completed tasks and their reports.

3.2. Follow-up activities

In many situations a meeting results in decisions, which generate actions to be executed outside the context of the meeting. Sometimes, the main outcome is not a decision, but the resulting action. What occurs in many cases is the lack of continuity between the end of the meeting and the implementation stage. As a result, many decisions get lost or forgotten in the way to the implementation procedure.

To solve this problem it is necessary to establish a formal link between each meeting outcome and the result of its implementation. Moreover, if the implementation procedure is detailed into working steps, it should be possible to control its execution and to correct eventual misunderstandings.

There are several benefits of this formal link between the meeting outcomes and their corresponding implementation procedures. First, it would allow a formal definition of responsibilities and expected results. Second, if an automated system were provided, it would allow a better control of the outcome implementation. Finally, it may make the meeting cycle more efficient by avoiding less time spent during the meetings for follow-up activities.

A system supporting the post-meeting should be prepared to receive the meeting outcomes in the form of well-defined processes where working steps, their corresponding flow, outcomes and responsibilities are initially determined. Then, it should be able to register or even better, to control the execution of these steps, allowing people directly involved in the execution to track its progress. People with some interest in the process but not directly executing the steps could also have access to the tracking information.

3.3. Means of Interaction

When people make a decision, they often do it under some time pressure. In most cases there is no time to go into implementation details. It is left to the implementation group to solve eventual problems and ambiguities. However, the chosen options might sometimes change the essence of the decision. Thus, some interaction between decision-making and implementation groups is desired. If this possibility is not readily available, then either the implementation work is postponed until another meeting is scheduled, or the implementation group takes upon themselves the decision about the option to be followed.

Both situations described above should be avoided. Ideally, a direct communication channel between the involved parts should be formally created, encompassing each outcome implementation. This channel should work as an extension of the meeting that originated the decision, allowing the task to be adapted in conformity with the basics of the decision. Complex decisions benefit most from this approach.

One may argue that e-mail and/or telephone could solve this problem, but hierarchical barriers, informality and absence of context may impose restrictions to

communication. The main requirement is to create a communication channel within the context of each outcome and involved people. The interaction through this channel should be structured and persistent. The nature of this type of communication is typically asynchronous, but real time interaction should also be provided for rapid problem solving. Ideally these interactions should also be documented contributing to future recovery, if it is necessary.

3.4. Awareness

A decision can affect many people besides those directly involved in its conception and implementation. It may be of peripheral interest, for example, to high-level management. On the contrary, a decision will be of direct interest to people affected by it. Most meetings do not provide appropriate information to outsiders. This is also true during the implementation period. The lack of awareness information generates informal demands, which are time consuming. Additionally, these requests are not appropriately answered in many cases. Simply preventing people from accessing the information is not a solution: people will use their informal channels creating some extra burden to the decision-making or implementation group.

The straightforward solution to this problem is to provide some awareness information to outsiders. Considering that not all details are relevant and open to outsiders, an awareness mechanism should somehow filter the information. The organization can avoid misunderstandings and anxiety by organizing information dissemination about meeting decisions.

A system supporting the follow-up information should also take care of outsiders' requests. People should be able to track the execution steps as well as to have a view of the general plan. The system should also automatically inform interested persons about previously selected items of their interest.

4. Designing post-meeting support

Our approach calls for structuring the activities to be performed in the Post-meeting phase. However, it should be noted that research done by Suchman has shown that plans, procedures and process models in office work play a weaker role in providing guidance for situated action than was assumed by the proponents of workflow automation (Suchman, 1983). Furthermore, Schmidt (1997) suggests that the procedural structure of such protocols can be thought of as the *result* of orderly work rather than its *determinant*. This could warn us about the difficulties to structure activities. Nevertheless, in our case, the activities to be carried out in the Post-meeting phase have been already decided in the Meeting phase; that means, the decision makers *envision* what should be done after the meeting. This does not imply the specification of the decisions and responsible persons to implement them is complete and unambiguous. On the contrary, implementers will probably have equivocality and uncertainty concerning the decisions made in the previous phase.

From our viewpoint, post-meeting activities should be explicitly defined and assessed by decision meeting participants. The requirements described in the previous section suggest a workflow-like solution where working plans can be described and enacted. The proposed solution is a system combining a process design tool with a workflow enactment tool. However, given the ad-hoc nature of the processes, it will be difficult to use a commercial Workflow Management System (WfMS) alone. Even with the adoption of a WfMS for process enactment, additional monitoring tools will be necessary. In this section we describe how the solutions proposed in the previous section can be implemented.

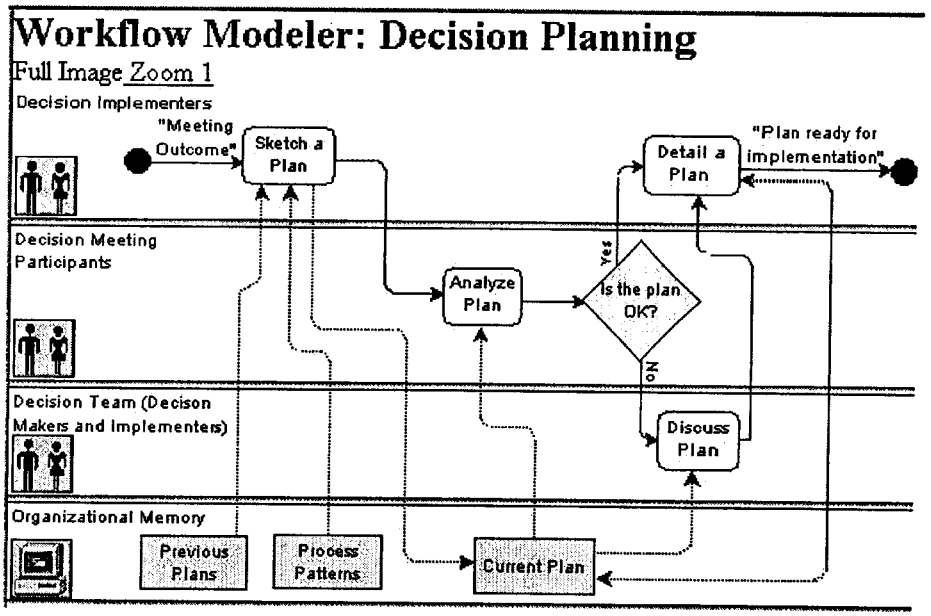

Figure 2 - Design process of post-meeting implementation plan.

To generate a decision implementation plan we need a process design tool. Most WfMS provide such tools, but their approach is directed towards production processes, when you plan once and enact many instances. Another typical WfMS limitation is that although one can use previous models to generate a new one, the WfMS provides little support for reuse. The design process is usually time consuming and complex. To overcome these difficulties we suggest the adoption of a process pattern approach. In this approach, a number of process patterns are made available to the designer based on the characteristics of the domain, in our case, the post-meeting processes. A pattern is defined as a generalized description of a set of recurring rules that can be associated with a workflow schema. Following this approach, designers can reuse previous experiences to improve the speed and the quality of the schema design process (Casati, 2000). The decision planning process of our solution is shown in Figure 2. The workflow models were generated by the Provision Workbench™ tool (Proforma, 2000).

Very often, the implementers of a decision are not members of the group who made the decision. In our solution we propose explicit and formal links between the decision made during the meeting and its corresponding implementation plan. This is achieved by enforcing activities to promote awareness and interaction between these groups in the implementation plan. This occurs on two occasions in the implementation decision planning described in Figure 2: when analyzing the plan and when a problem is detected while both groups are discussing.

A process plan associated with each decision is our preferred approach. Unlike traditional business processes, we assume that each plan will have only one instance. Therefore, we can make changes to the plan as needed during the process execution. We need to provide a different strategy to facilitate the design of process plans.

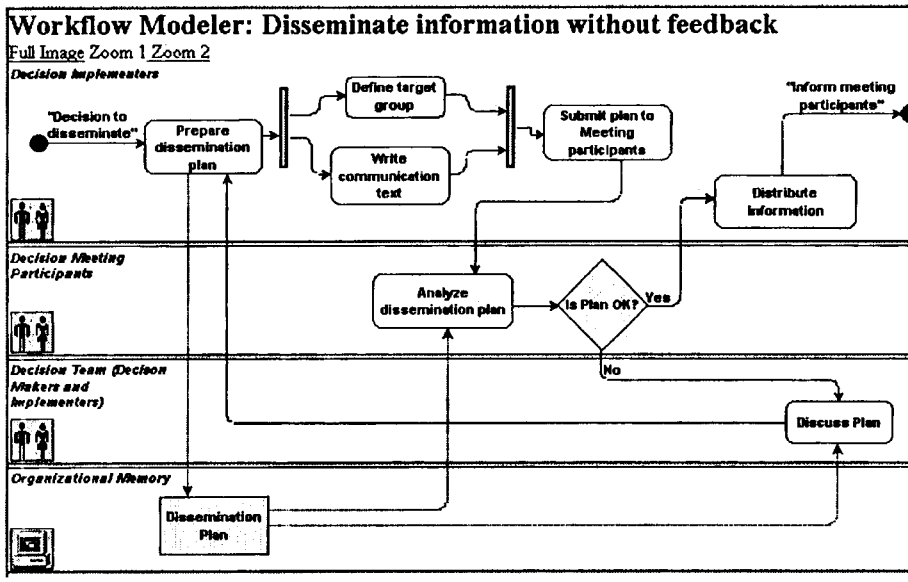

Figure 3. An example of a process pattern for decision implementation.

The use of process patterns on the decision implementation domain is the suggested approach. The process patterns would work as a guide to implementers when dealing with decision implementation plans. We start with a library of typical decision implementation plans that can be executed as it is or used to generate a new plan. Plans can also be transferred to the library after a successful adjustment during enactment. An example of a process pattern is shown in Figure 3.

The simple adoption of a decision plan and its corresponding workflow enactment does not guarantee that interaction will occur among decision makers and decision implementers. Nevertheless, it does not only provide the means for this interaction to happen but also brings transparency to the decision implementation. Without this explicit representation, informal interactions are the only way to promote formal awareness.

Management and other people affected by the decision can also benefit from this explicit awareness. Unfortunately, most WfMS do not provide access by people not directly involved in the process. Awareness can then be provided by a notification mechanism (such as an e-mail message sent when a process reaches a subscribed activity) or through an application allowing access to the workflow database. In Figure 3, for instance, a manager can subscribe to the "Discuss Plan" activity. He will then be notified if and when a process goes through this activity.

The full awareness of the process plan and its enactment provide means to correct the decision implementation or its adjustment. While the decision implementation plan provides a full view of the process activities, the process enactment through a workflow system provides the follow-up of its realization. If the workflow system interface were built for Web usage, it would also allow the decision implementation to be remotely monitored.

5. Discussion

The first issue is the effectiveness of the proposed approach. Is it worth to make visible the activities concerned with the post-meeting? When comparing with traditional meetings we may notice there are several gains. First, there is a structured follow-up of the decisions made at the meeting. Secondly, there is explicit awareness of task progress for all involved roles. Third, there is Organizational Memory capture of potentially valuable information. Finally, there is easier identification of several items after the meeting: issues for the next cycle, unclear details of the decisions just made, and unsettled issues after some tasks have been done. The evaluation of these gains will have to be compared with the additional effort to deal with a computer system intended to support the post-meeting stage.

The concept of post-meeting support can be carried on with traditional tools, such as Project Management Systems (PMS), electronic mail, telephone, to-do lists and others. Nevertheless, these tools fall short of providing the complete support needed. For instance, a PMS provides timetables, alarms when time scheduled for a task is exceeded, Gantt charts, etc, but it deals with projects, not decisions.

On the other hand, the feasibility of consulting at any time the information generated during a decision implementation can be useful from several points of view. From the management perspective, this can help to avoid recurrent mistakes. From the social and organizational perspective, this technological approach can provide opportunities of collaboration and exchanges that traditional tools would be very limited to support, like asynchronous interaction, for example.

Concerning the system implementation, the main components of the proposed solution are: the process pattern library, created from the initial analysis of meeting decisions; the process model tool, which uses the process pattern library and the past process definitions; a data driven WfMS which allows applications to access the process data; and a subscription mechanism to allow organization members to be kept informed of the decision implementation.

The implementation of a workflow to support the post-meeting stage should be done in agreement with the operational environment of the users. This means the same operating system and network they are currently using. Moreover, it is desirable the workflow be a part of or function tightly coupled with the software systems people are using. In particular, if people are using computer-based tools to support pre-meetings and/or meetings, it seems reasonable the post-meeting tool should have a direct relationship with them, easing its adoption and use.

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